

REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

Claims 9, 11 and 26 are independent Claims.

Claims 10, 13, 15-18 and 31 depend directly or indirectly on Claim 9.

Claims 12, 19-24 and 32 depend directly or indirectly on Claim 11.

Claims 27-30 and 33 depend on Claim 26.

The present invention as set forth in **amended Claim 9** relates to a method for removing carbon monoxide from a hydrogen gas, comprising:

contacting said hydrogen gas which contains carbon monoxide with a catalyst for a water gas shift reaction said **catalyst comprising at least platinum and rhenium**, both supported on a metal oxide carrier.

Ou et al fail to disclose or suggest the removal of carbon monoxide from a hydrogen gas using a catalyst comprising platinum and rhenium. In addition, Applicants provide herewith a Rule 132 Declaration showing superior properties of the combination of platinum and rhenium.

Ou et al disclose a process for the separation and removal of hydrogen alone or together with carbon monoxide, if present, from a mixture of these gases with reactive unsaturated hydrocarbons by contacting the mixture with oxygen over a catalyst at conditions sufficient to oxidize the hydrogen to form water while suppressing the reactive, unsaturated hydrocarbons (Ou et al, abstract). The removal of carbon monoxide by reaction with water (water gas-shift reaction) is disclosed at col. 1, lines 65-col. 5, line 5. Catalysts suitable for the second reaction zone are disclosed at col. 6, lines 46-65. They include one or more metals or metal oxides of Groups IB, IIB, IIIB, IVB, VB, VIB, VIIB and VIII and the elements of copper and zinc supported on inert porous supports. Selected removal of CO is

further described, for example, in Example 1 at col. 7, lines 49 and 50. However, there is no disclosure or suggestion to use the claimed catalyst for the CO removal. Col. 6, lines 46-50 only gives a laundry list of possible elements for the catalyst material. But there is no suggestion to select the specific combination of platinum with rhenium. Ou et al exemplify only a platinum-on-alumina catalyst (Example 1, col. 7, line 18). However, Ou et al do not exemplify the specific combination of platinum and rhenium in the catalyst.

In addition, the attached **Rule 132 Declaration** shows in the Figure that the catalyst having platinum and rhenium works significantly better for the conversion of CO than each of the catalysts having only platinum or only rhenium. Further, the superior effect of the catalyst according to the present invention having both platinum and rhenium is shown over a broad temperature range from 175 to 250°C. These results are not disclosed or suggested by cited the references. Accordingly, even if the Examiner can establish a prima facie case of obviousness, such is rebutted by the data of the Rule 132 Declaration.

Therefore, the rejection of Claims 9, 10, 13 and 31 under 35 U.S.C. §103(a) as being unpatentable over Ou et al is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

In addition, the rejection of Claims 9-13, 15, 18, 19, 21, 24, 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over Clawson et al is respectfully traversed.

The present invention as set forth in **amended Claim 11** relates to a fuel cell generation system, comprising:

a hydrogen gas which contains carbon monoxide in contact with a **catalyst** for a water gas shift reaction **comprising at least platinum and rhenium**, both supported on a metal oxide carrier so as to remove carbon monoxide from the hydrogen gas.

Clawson et al do not disclose the combination of platinum and rhenium in the catalyst.

All that this reference discloses are low temperature shift catalysts which are either of supported platinum or supported rhenium (col. 5, line 27). The Examiner also has acknowledged that the reference fails to disclose the combination of platinum and rhenium (Office Action at page 5). Accordingly, even if the Examiner can establish a prima facie case of obviousness, such is rebutted by the data of the **Rule 132 Declaration**.

Therefore, the rejection of Claims 9-13, 15, 18, 19, 21, 24, 31 and 32 under 35 U.S.C. §103(a) as being unpatentable over Clawson et al is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

The rejection of Claims 26, 29, 30 and 33 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Jensen et al and the rejection of Claims 27 and 28 under 35 U.S.C. §103(a) as being unpatentable over Jensen et al is respectfully traversed.

The present invention as set forth in **Claim 26** relates to a carbon monoxide removing unit which contains a **catalyst** for a water gas shift reaction **comprising at least platinum and rhenium**, both supported on a metal oxide carrier,

wherein said catalyst is capable of contacting a hydrogen gas having an initial carbon monoxide concentration, thereby producing a hydrogen gas having a reduced carbon monoxide concentration compared to said initial carbon monoxide concentration.

Jensen et al fail to disclose or suggest a carbon monoxide removing unit which contains a catalyst for a water gas shift reaction comprising at least platinum and rhenium.

All that this reference discloses is that catalytic metals can be dispersed on a catalyst support. A platinum group metal can be used. Such metals include platinum, palladium, rhodium, iridium, ruthenium and osmium. Promoter metals can be selected from tin,

germanium, rhenium, gallium, bismuth, lead, indium, cerium, zinc and mixtures thereof (Jensen et al, col. 5, lines 51-61). However, there is no suggestion or motivation to select the combination of platinum and rhenium. In fact, such combination is not exemplified. All of the Examples have a combination of platinum and tin. However, the data of the Rule 132 Declaration show that the claimed combination of platinum and rhenium is superior.

Therefore, the rejection of Claims 26, 29, 30 and 33 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Jensen et al and the rejection of Claims 27 and 28 under 35 U.S.C. §103(a) as being unpatentable over Jensen et al is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

The rejection of Claims 26, 27 and 33 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Zhang and the rejection Claim 28 under 35 U.S.C. §103(a) as being unpatentable over Zhang is respectfully traversed.

Zhang fails to disclose or suggest a carbon monoxide removing unit which contains a catalyst for a water gas shift reaction comprising at least platinum and rhenium.

All that this reference discloses is a catalyst which has a support and a catalytic metal (Zhang, col. 2, lines 35-37). The reference further discloses that is preferably a Group VIII noble metal, such as platinum (Zhang, col. 2, line 58). Other metal may be included such as tin, titanium, germanium, rhenium, silicon, lead, phosphorous, arsenic, antimony, bismuth, copper, silver, cobalt or mixtures thereof (Zhang, col. 2, lines 63-67). However, there is no suggestion or motivation to select the combination of platinum and rhenium. In fact, such combination is not exemplified. However, the data of the Rule 132 Declaration show that the claimed combination of platinum and rhenium is superior.

Therefore, the rejection of Claims 26, 27 and 33 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Zhang the

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rejection Claim 28 under 35 U.S.C. §103(a) as being unpatentable over Zhang is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

The rejection of Claims 18 and 24 under 35 U.S.C. §112, 1st paragraph, is obviated by the amendment of Claims 18 and 24.

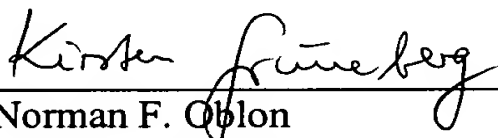
The rejection of Claims 11, 12, 15-19, 21-24 and 32 under 35 U.S.C. §112, 2nd paragraph, is obviated by the amendment of Claim 11.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

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